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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,585	10/20/2003	Eric Montfort	Q77958	2460

23373 7590 03/25/2005
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EXAMINER

BROADHEAD, BRIAN J

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,585

Applicant(s)

MONTFORT ET AL.

Examiner

Brian J. Broadhead

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10-20-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Collyer, 5931419.

3. Collyer discloses an attitude control system for a geostationary satellite including elongate members such as solar generators and/or antennas, in particular deployable members, which system includes gyroscopic actuators for supplying the torque necessary for maintaining the attitude of said satellite when subjected to disturbing forces or torques on line 7-15, on column 1; wherein said gyroscopic actuators are adapted to maintain a setpoint attitude during orbit correction phases on lines 20-28, on column 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Collyer, 5931419.

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6. Collyer discloses gyroscopic actuators are adapted to control the attitude during phase of insertion into orbit on lines 14-15, on column 1. Collyer does not disclose the orbit is geosynchronous. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the invention Collyer with any type of orbit insertion including a geosynchronous orbit because any type of orbit insertion requires attitude control.

7. Claims 4, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collyer, 5931419, in view of Markley et al., "Attitude Control System Conceptual Design for Geostationary Operational Environmental Satellite Spacecraft Series".

8. Collyer discloses the limitations as set forth above. Collyer does not disclose an attitude regulation loop including a corrector such that the bandwidth of said loop contains the lowest and most energetic frequencies of the flexible modes of said elongate members; said corrector of said loop is of the proportional, integral, derivative type and is associated with an attenuation filter; and said corrector of said loop is synthesized by means of advanced system control methods, the control method includes one or the H-infinity and Linear Matrix Inequality methods. Markley et al. teach an attitude regulation loop including a corrector such that the bandwidth of said loop contains the lowest and most energetic frequencies of the flexible modes of said elongate members in figure 7; wherein said corrector of said loop is of the proportional, integral, derivative type and is associated with an attenuation filter in figure 3; and said corrector of said loop is synthesized by means of advanced system control methods such as the H-infinity and Linear Matrix Inequality methods on page 252. It would have

been obvious to one of ordinary skill in the art at the time the invention was made to use the controls method of Markley et al. in the invention of Collyer because such modification would provide pointing performance and stability while avoiding low-frequency flexible modes of the spacecraft while providing superior rotational maneuvering with the CMGs. It is well known in the art that CMGs can be interchanged with reaction wheels to provide faster pointing, but aren't used as often because of their higher cost.

Response to Arguments

9. Applicant's arguments with respect to claims 1 through 6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

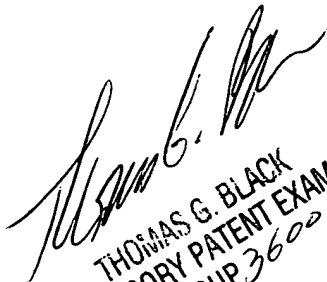
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Broadhead whose telephone number is 703-308-9033. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 703-305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


BJB


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